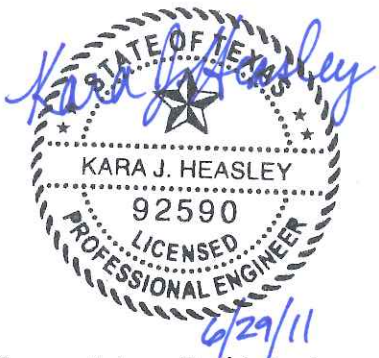
ADDENDUM No. 2 – Leon Creek Greenway

CITY OF SAN ANTONIO
COSA Parks & Recreation



PROJECT NAME: Leon Creek Greenway: Southern Segment – Southern Segment: Loop Trail to Levi Strauss Park

DATE: June 29, 2011

This addendum shall be included in and be considered part of the plans and specifications for the above named project. The contractor shall be required to sign an acknowledgment of receipt of this addendum at the time he receives it and returns the original signed forms with the bid package.

Project No. 26-00078

GENERAL

CLARIFICATIONS:

1. The parking lot light pole foundations are detailed on sheet E2.01; however, I do not see where it shows the diameter of the foundation. What is the diameter? How are these foundations paid? Are they subsidiary to the nine light poles?

   The diameter of the light pole foundations are as follows:

Size	Reinforcement	Depth
24" diameter	6-#8w 3/8" diameter and 12" Pitch	5'

   The foundations are subsidiary to Bid Item 16530 Lighting Fixture Type "A".

2. What does bid item 685.1 INSTALL RDSD FLASH BEACON ASSM @ 2EA pay for? I do not see any roadside flashers in the traffic signal plans, and this item does not show up in the traffic signal summary on sheet T1.02.

   The bid item "685.1 INSTALL RDSD FLASH BEACON ASSM" was omitted from the Plans and Specifications as part of Addendum #1. The following bid items have been added to the Plans and Form 025 Unit Pricing Form. The locations of these signs can be found on Sheet C1.07

   - *Item 531.51 W11-2 Ped. Crossing, 4 EA*
   - *Item 531.59 W16-4P Supplemental Distance Plaque (NEXT 300 FT), 2 EA*
   - *Item 531.59 W16-7P Downward Arrow, 2 EA*

3. The top soil line item only includes 2 cubic yards. It will take much more than that to meet the requirements listed in the drawings.

   The quantity for Item 515.1 Topsoil (1/2") has been revised to 85 cubic yards.

4. Can spoils be spread on-site or do they need to be hauled off? Do all of the cubic yards included in line Item 104.1 need to be hauled off?

   Please refer to Sheet G1.0 for notes referring to Soils & Subgrade. Until actual excavation takes place, it is to be assumed that all spoils will be hauled off.

5. Division I – Alternatives – 01100 includes 2 base bids and multiple alternates. The bid form does not include a space for all of the alternates and multiple base bids. Also, how are the base bids supposed to be broken down in the unit pricing?

   Special Specification 01100 Alternatives has been removed from the Specifications and Contract Documents.

6. What scopes of work are to be included in line item 101.1 "Preparing Right of Way?" There was not a line item breaking out tree protection, removing wood debris from 20' outside the trail, removing misc. debris 30' outside of trail, clearing, and surveying. Are these items to be included in this unit price?

   Please refer to Specification Item 101 Preparing Right-of-Way in the City of San Antonio Standard Specifications for Construction (June 2008). Sections 101.1 through 101.4 Address Tree Protection, Removing Debris, and Clearing.

7. Line item 508.1 "Remove chain link fence" includes 0 linear feet. Is this accurate?

   Line Item 508.1has been updated for the quantity of chainlink fence to be removed.

8. What products are acceptable to use as anti-graffiti?

   The City allows the use of the attached Sherwin Williams products or equal.

SPECIFICATIONS AND CONTRACT DOCUMENTS

Replace: List of Governing Specifications with revised List of Governing Specifications
(Removing Special Specification 01100 Alternatives)

Replace: 025 Unit Pricing Form with revised 025 Unit Pricing Form
(The following items have been updated/revised)

Item 507.3 Chainlink Fence (8' High w/3 Strands Barbed Wire): Remove original quantity and replace with 972 LF.

Item 508.1 Remove Chainlink Fence: Remove original quantity and replace with 1,822 LF.

Item 515.1 Topsoil (1/2"): Remove original quantity and replace with 85 CY.

Item 16110 3/4" Underground Conduit: Remove original quantity and replace with 890 LF.

Item 16120 3#8 Copper Conductors: Remove original quantity and replace with 393 LF.

Add: Item 531.51 W11-2 Ped. Crossing: 4 EA.

Item 531.59 W16-4P Supplemental Distance Plaque (Next 300 FT): 2 EA.

Item 531.59 W16-7P Downward Arrow: 2 EA.

Remove: Item 508.1 Relocated Chainlink Fence (8' High w/3 Strands Barbed Wire): 971 LF

CONSTRUCTION DOCUMENTS

Replace:

- Cover Sheet with revised Cover Sheet
- C1.00 with Revised Sheet C1.00 (Labeled Maintenance Yard)
- C1.01 with Revised Sheet C1.01 (Added fence note and revised fence callouts)
- C1.07 with Revised Sheet C1.07 (added pedestrian crossing warning signs)
- TH1.04 with Revised Sheet TH1.04 (Added fence note and revised fence callouts)
- L1.01 with Revised Sheet L1.01 (Added fence note and revised fence callouts)
- E2.01 with Revised Sheet E2.01 (Revised light pole base detail)
- E2.02 with Revised Sheet E2.02 (Revised light pole base detail)

Add:

- Sheet E1.04- PARTIAL SITE PLAN- PARKING LOT LIGHTING (EAST)

END OF ADDENDUM NO. 2

ADDENDUM REVIEWED & APPROVED BY:

FOR _____
Special Projects Manager

NOTICE TO PLANHOLDERS:

Please insert this Addendum into your copy of the Project Construction Documents.

Attached:

Revised Unit Pricing Form 025
Governing Specifications
Product Sheet: Sherwin Williams Industrial & Marine Coatings Macropoxy®646 Fast Cure Epoxy
Sheets: Cover Sheet; C1.01; C1.07; TH1.04; L1.01; E2.01; E2.02; E1.04

CITY OF SAN ANTONIO
COSA PARKS & RECREATION DEPARTMENT

RECEIPT OF ADDENDUM NUMBER **2** IS HEREBY ACKNOWLEDGED FOR PLANS AND SPECIFICATIONS FOR CONSTRUCTION OF **Leon Creek Greenway Southern Segment – Loop Trail to Levi Strauss Park.**

FOR WHICH BIDS WILL BE OPENED ON **July 5, 2011.**

THIS ACKNOWLEDGEMENT MUST BE SIGNED AND RETURNED WITH THE BID PACKAGE

Company Name: _____

Address: _____

City/State/Zip Code: _____

Date: _____

_____
Signature

_____
Print Name/Title

GOVERNING SPECIFICATIONS

All standard specifications, modifications, and special specifications applicable to this project are identified as follows:

STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS AND BRIDGES, ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION
JUNE 1, 2004

ITEM NO.	DESCRIPTION
420	Concrete Structures (421) (422) (427) (440) (448)
432	Riprap (Rock) (421)
450	Railing (421)(440)(441)(442)(445)(446)(447)(448)
466	Headwalls and Wingwalls
621	Tray Cable

CITY OF SAN ANTONIO STANDARD SPECIFICATIONS FOR CONSTRUCTION
JUNE 2008

ITEM NO.	DESCRIPTION
100	Mobilization
101	Preparing Right-of-Way
102	Obliterating Abandoned Street
103	Remove Concrete
104	Street Excavation
105	Channel Excavation
107	Embankment
200	Flexible Base
202	Prime Coat
203	Tack Coat
205	Hot Mix Asphaltic Concrete Pavement
206	Asphalt Treated Base
210	Rolling
220	Blading
300	Concrete
301	Reinforcing Steel
302	Metal for Structures

303	Welded Wire Flat Sheets
306	Structural Excavation
307	Concrete Structures
308	Drilled Shafts and Under-Reamed Foundations
309	Precast Reinforced Concrete Box Culvert
311	Concrete Surface Finish
400	Excavation, Trenching and Backfilling
500	Concrete Curb, Gutter, and Concrete Curb and Gutter
502	Concrete Sidewalks
503	Concrete Driveways
505	Concrete Riprap
507	Chainlink Wire Fence and Gates
508	Relocating Wire Fence
510	Timber Guard Posts
515	Topsoil
516	Sodding
520	Hydromulching
522	Sidewalk Pipe Rail
524	Concrete Steps
530	Barricades, Signs and Traffic Handling
531	Signs
535	Hot Applied Thermoplastic Pavement Markers
536	Preformed Pavement Markings
539	Intersection Grade Pavement Tape
540	Temporary Erosion, Sedimentation, and Water Pollution Prevention and Control
556	Cast-in-Place Detectable Warning Surface Tiles
618	Conduit
620	Electrical Conductors
624	Ground Boxes
628	Electrical Services
633	Battery Backup System for Traffic Signal
655	Controller Foundation and Pedestal Posts
680	Installation of Highway Traffic Signals
682	Vehicle and Pedestrian Signal Heads
684	Traffic Signal Cables

686	Traffic Signal Pole Assemblies
688	Pedestrian Detectors and Vehicle Loop Detectors

SPECIAL SPECIFICATIONS

ITEM NO.	DESCRIPTION
00229	Milling (Planing) & Disposal of Asphaltic Pavement
00553	Storm Water Pollution Prevention Plan (SW3P)
00688	Microwave Pedestrian Sensors
01000	Special Provisions
01010	Summary of Work
01340	Shop Drawings, Product Data and Samples
02231	Tree Protection and Trimming
02310	Grading
02316	Fill and Backfill
02921	Seeding
02930	Exterior Plants
02940	Treatment of Existing Trees
04450	Stone Walls
05118	Steel and Welding
05500	Metal Fabrications
07610	Sheet Metal Roofing
	Woven Turf Reinforcement Mat

Industrial & Marine Coatings

4.53 MACROPOXY® 646 FAST CURE EPOXY

PART A B58-600 SERIES
PART B B58V600 HARDENER

PRODUCT INFORMATION

Revised 3/07

PRODUCT DESCRIPTION

MACROPOXY 646 FAST CURE EPOXY is a high solids, high build, fast drying, polyamide epoxy designed to protect steel and concrete in industrial exposures. Ideal for maintenance painting and fabrication shop applications. The high solids content ensures adequate protection of sharp edges, corners, and welds. This product can be applied directly to marginally prepared steel surfaces.

- Low VOC
- Low odor
- Chemical resistant
- Abrasion resistant

RECOMMENDED USES

- Marine applications
- Fabrication shops
- Pulp and paper mills
- Power plants
- Offshore platforms
- Refineries
- Chemical plants
- Tank exteriors
- Water treatment plants
- Mill White and Black are acceptable for immersion use for salt water and fresh water, not acceptable for potable water
- Suitable for use in USDA inspected facilities

Conforms to AWWA D102-03 OCS #5

PRODUCT CHARACTERISTICS

Finish:	Semi-Gloss
Color:	Mill White, Black and a wide range of colors available through tinting
Volume Solids: Mill White	72% ± 2%, mixed
Weight Solids: Mill White	85% ± 2%, mixed
VOC (EPA Method 24): mixed	Unreduced: <250 g/L; 2.08 lb/gal Reduced 10%: <300 g/L; 2.50 lb/gal
Mix Ratio:	1:1 by volume
Recommended Spreading Rate per coat:	
Wet mils:	7.0 - 13.5
Dry mils:	5.0 - 10.0*
Coverage:	116 - 232 sq ft/gal approximate

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.
* See Recommended Systems

Drying Schedule @ 7.0 mils wet and 50% RH:

	@ 40°F	@ 77°F	@ 100°F
To touch:	4-5 hours	2 hours	1½ hours
To handle:	48 hours	8 hours	4½ hours
To recoat:			
minimum:	48 hours	8 hours	4½ hours
maximum:	1 year	1 year	1 year
Cure for			
service:	10 days	7 days	4 days
immersion:	14 days	7 days	4 days

If maximum recoat time is exceeded, abrade surface before recoating.
Drying time is temperature, humidity and film thickness dependent.

Pot Life:	10 hours	4 hours	2 hours
Sweat-in-time:	30 minutes	30 minutes	15 minutes

Shelf Life:	36 months, unopened Store indoors at 40°F to 100°F.
Flash Point:	91°F, TCC, mixed
Reducer/Clean Up: In California:	Reducer, R7K15 Reducer R7K111 or Oxsol 100

PERFORMANCE CHARACTERISTICS

System Tested: (unless otherwise indicated)
Substrate: Steel
Surface Preparation: SSPC-SP10
1 ct. Macropoxy 646 Fast Cure @ 6.0 mils dft

Abrasion Resistance:
Method: ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load
Result: 84 mg loss

Accelerated Weathering - QUV, Zinc Clad II Plus Primer:
Method: ASTM D4587, QUV-A, 12,000 hours
Results: passes

Adhesion:
Method: ASTM D4541
Result: 1,037 psi

Corrosion Weathering, Zinc Clad II Plus Primer:
Method: ASTM D5894, 36 cycles, 12,000 hours
Result: Rating 10 per ASTM D714 for blistering
Rating 9 per ASTM D610 for rusting

Direct Impact Resistance:
Method: ASTM D2794
Result: 30 in. lb.

Dry Heat Resistance:
Method: ASTM D2485
Result: 250°F

Exterior Durability:
Method: 1 year at 45° South
Result: Excellent, chalks

Flexibility:
Method: ASTM D522, 180° bend, 3/4" mandrel
Result: Passes

Humidity Resistance
Method: ASTM D4585, 6000 hrs
Result: No blistering, cracking, or rusting

Immersion:
Method: 1 year fresh and salt water
Result: Passes, no rusting, blistering, or loss of adhesion

Irradiation-Effects on Coatings used in Nuclear Power Plants
Method: ANSI 5.12 / ASTM D4082-89
Result: Passes

Pencil Hardness:
Method: ASTM D3363
Result: 3H

Water Vapor Permeance:
Method: ASTM D1653, Method B
Result: 1.16 grains/ day

Salt Fog Resistance, Zinc Clad II Plus Primer::
Method: ASTM B117, 6,500 hours
Result: Rating 10 per ASTM D610 for rusting
Rating 9 per ASTM D1654 for corrosion

Slip Coefficient, Mill White:
Method: AISC Specification for Structural Joints Using ASTM A325 or ASTM A490 Bolts
Result: Class A, 0.36

Epoxy coatings may darken or discolor following application and curing.

continued on back

Industrial & Marine Coatings

4.53

MACROPOXY® 646 FAST CURE EPOXY

PART A B58-600 SERIES
PART B B58V600 HARDENER

PRODUCT INFORMATION

RECOMMENDED SYSTEMS

Immersion and atmospheric:

Steel:
2 cts. Macropoxy 646 @ 5.0 - 10.0 mils dft/ct

Concrete/Masonry, smooth:
2 cts. Macropoxy 646 @ 5.0 - 10.0 mils dft/ct

Concrete Block:
1 ct. Kem Cati-Coat HS Epoxy Filler/Sealer @ 10.0 - 20.0 mils dft, as needed to fill voids and provide a continuous substrate.
2 cts. Macropoxy 646 @ 5.0 - 10.0 mils dft/ct

Atmospheric:

*Steel:
(Shop applied system, new construction, AWWA D102-03, can also be used at 3 mils minimum dft when used as an intermediate coat as part of a multi-coat system)
1 ct. Macropoxy 646 Fast Cure Epoxy @ 3.0 - 6.0 mils dft
1-2 cts. of recommended topcoat

Steel:
1 ct. Recoatable Epoxy Primer @ 4.0 - 6.0 mils dft
2 cts. Macropoxy 646 @ 5.0 - 10.0 mils dft/ct

*Steel:
1 ct. Macropoxy 646 @ 4.0 - 6.0 mils dft
1-2 cts. Acrolon 218 Polyurethane @ 3.0 - 6.0 mils dft/ct
or Hi-Solids Polyurethane @ 3.0 - 5.0 mils dft/ct
or SherThane 2K Urethane @ 2.0 - 4.0 mils dft/ct

Steel:
2 cts. Macropoxy 646 @ 5.0 - 10.0 mils dft/ct
1-2 cts. Tile-Clad HS Epoxy @ 2.5 - 4.0 mils dft/ct

Steel:
1 ct. Zinc Clad II Plus @ 3.0 - 6.0 mils dft
1 ct. Macropoxy 646 @ 5.0 - 10.0 mils dft
1-2 cts. Acrolon 218 Polyurethane @ 3.0 - 6.0 mils dft/ct

Steel:
1 ct. Zinc Clad III HS @ 3.0 - 5.0 mils dft
or Zinc Clad IV @ 3.0 - 5.0 mils dft
1 ct. Macropoxy 646 @ 5.0 - 10.0 mils dft
1-2 cts. Acrolon 218 Polyurethane @ 3.0 - 6.0 mils dft/ct

Aluminum:
2 cts. Macropoxy 646 @ 5.0 - 10.0 mils dft/ct

Galvanizing:
2 cts. Macropoxy 646 @ 5.0 - 10.0 mils dft/ct

The systems listed above are representative of the product's use. Other systems may be appropriate.

SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure good adhesion.
Refer to product Application Bulletin for detailed surface preparation information.
Minimum recommended surface preparation:

Iron & Steel	
Atmospheric:	SSPC-SP2/3
Immersion:	SSPC-SP10/NACE 2, 2-3 mil profile
Aluminum:	SSPC-SP1
Galvanizing:	SSPC-SP1
Concrete & Masonry	
Atmospheric:	SSPC-SP13/NACE 6, or ICRI 03732, CSP 1-3
Immersion:	SSPC-SP13/NACE 6-4.3.1 or 4.3.2, or ICRI 03732, CSP 1-3

TINTING

Tint Part A with 844 Colorants at 150% strength. Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.

Tinting is not recommended for immersion service.

APPLICATION CONDITIONS

Temperature:	40°F minimum, 140°F maximum (air, surface, and material) At least 5°F above dew point
Relative humidity:	85% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging:	
Part A:	1 and 5 gallon containers
Part B:	1 and 5 gallon containers
Weight per gallon:	12.9 ± 0.2 lb mixed, may vary by color

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Industrial & Marine Coatings

4.53A MACROPOXY® 646 FAST CURE EPOXY

PART A B58-600 SERIES
PART B B58V600 HARDENER

APPLICATION BULLETIN

Revised 3/07

SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Iron & Steel, Atmospheric Service:
Minimum surface preparation is Hand Tool Clean per SSPC-SP2. Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. For better performance, use Commercial Blast Cleaning per SSPC-SP6/NACE 3, blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils). Prime any bare steel within 8 hours or before flash rusting occurs.

Iron & Steel, Immersion Service:
Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2-3 mils). Remove all weld spatter and round all sharp edges by grinding. Prime any bare steel the same day as it is cleaned.

Aluminum
Remove all oil, grease, dirt, oxide and other foreign material by Solvent Cleaning per SSPC-SP1.

Galvanized Steel
Allow to weather a minimum of six months prior to coating. Solvent Clean per SSPC-SP1 (recommended solvent is VM&P Naphtha). When weathering is not possible, or the surface has been treated with chromates or silicates, first Solvent Clean per SSPC-SP1 and apply a test patch. Allow paint to dry at least one week before testing adhesion. If adhesion is poor, brush blasting per SSPC-SP7 is necessary to remove these treatments. Rusty galvanizing requires a minimum of Hand Tool Cleaning per SSPC-SP2, prime the area the same day as cleaned.

Concrete and Masonry, Atmospheric Service:
For surface preparation, refer to NACE 6/SSPC-SP13, or ICRI 03732, CSP 1-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 75°F. Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets and other voids with a cement patching compound. Weathered masonry and soft or porous cement board must be brush blasted or power tool cleaned to remove loosely adhering contamination and to get to a hard, firm surface. Laitance must be removed by etching with a 10% muriatic acid solution and thoroughly neutralized with water.

Concrete and Masonry, Immersion Service:
For surface preparation, refer to SSPC-SP13/NACE 6, Section 4.3.1 or 4.3.2, or ICRI 03732, CSP 1-3.

Previously Painted Surfaces
If in sound condition, clean the surface of all foreign material. Smooth, hard or glossy coatings and surfaces should be dulled by abrading the surface. Apply a test area, allowing paint to dry one week before testing adhesion. If adhesion is poor, or if this product attacks the previous finish, removal of the previous coating may be necessary. If paint is peeling or badly weathered, clean surface to sound substrate and treat as a new surface as above.

APPLICATION CONDITIONS

Temperature:	40°F minimum, 140°F maximum (air, surface, and material) At least 5°F above dew point
Relative humidity:	85% maximum

APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

Reducer/Clean Up ..... Reducer R7K15
In California ..... Reducer R7K111

Airless Spray
Pump 30:1
Pressure ..... 2800 - 3000 psi
Hose ..... 1/4" ID
Tip ..... .017" - .023"
Filter ..... 60 mesh
Reduction ..... As needed up to 10% by volume

Conventional Spray
Gun ..... DeVilbiss MBC-510
Fluid Tip ..... E
Air Nozzle 704
Atomization Pressure .. 60-65 psi
Fluid Pressure ..... 10-20 psi
Reduction ..... As needed up to 10% by volume
Requires oil and moisture separators

Brush
Brush ..... Nylon/Polyester or Natural Bristle
Reduction ..... Not recommended

Roller
Cover ..... 3/8" woven with phenolic core
Reduction ..... Not recommended

If specific application equipment is listed above, equivalent equipment may be substituted.

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Industrial & Marine Coatings

4.53A

MACROPOXY® 646 FAST CURE EPOXY

PART A B58-600 SERIES
PART B B58V600 HARDENER

APPLICATION BULLETIN

APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with power agitation. Make certain no pigment remains on the bottom of the can. Then combine one part by volume of Part A with one part by volume of Part B. Thoroughly agitate the mixture with power agitation. Allow the material to sweat-in as indicated prior to application. Re-stir before using.

If reducer solvent is used, add only after both components have been thoroughly mixed, after sweat-in.

Apply paint to the recommended film thickness and spreading rate as indicated below:

Recommended Spreading Rate per coat:

Wet mils:	7.0 - 13.5
Dry mils:	5.0 - 10.0*
Coverage:	116 - 232 sq ft/gal approximate

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.
* See Recommended Systems

Drying Schedule @ 7.0 mils wet and 50% RH:

	@ 40°F	@ 77°F	@ 100°F
To touch:	4-5 hours	2 hours	1½ hours
To handle:	48 hours	8 hours	4½ hours
To recoat:			
minimum:	48 hours	8 hours	4½ hours
maximum:	1 year	1 year	1 year
Cure for			
service:	10 days	7 days	4 days
immersion:	14 days	7 days	4 days

If maximum recoat time is exceeded, abrade surface before recoating.
Drying time is temperature, humidity and film thickness dependent.

Pot Life:	10 hours	4 hours	2 hours
Sweat-in-time:	30 minutes	30 minutes	15 minutes

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

PERFORMANCE TIPS

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, and adhesion.

Do not mix previously catalyzed material with new.

Do not apply the material beyond recommended pot life.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer R7K15. In California use Reducer R7K111.

Tinting is not recommended for immersion service.

Use only Mil White and Black for immersion service.

Quik-Kick Epoxy Accelerator is acceptable for use. See data page 4.99 for details.

Refer to Product Information sheet for additional performance characteristics and properties.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer R7K15. Clean tools immediately after use with Reducer R7K15. In California use Reducer R7K111. Follow manufacturer's safety recommendations when using any solvent.

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

Industrial & Marine Coatings

5.21

HI-SOLIDS POLYURETHANE

PART S	B65-300	GLOSS SERIES
PART S	B65-350	SEMI-GLOSS SERIES
PART T	B60V30	HARDENER

PRODUCT INFORMATION

Revised 6/05

PRODUCT DESCRIPTION

HI-SOLIDS POLYURETHANE is a two-component, low VOC, aliphatic, acrylic polyurethane resin coating. It is designed for high performance protection with outstanding exterior gloss and color retention.

- Good/excellent resistance to corrosion and weathering
- Outstanding color and gloss retention
- Chemical resistant
- Part of a system tested for nuclear irradiation and decontamination, Level II
- Suitable for use in USDA inspected facilities

RECOMMENDED USES

For use over prepared substrates in industrial environments

- Heavy duty interior and exterior structural coating
- A chemical and abrasion resistant equipment and machinery finish
- A gloss and color retentive heavy duty maintenance coating for use in "high visibility" areas
- Exterior surfaces of steel tanks
- Chemical processing equipment
- Exterior metal siding and trim
- Marine Applications
- Oil Field Machinery
- Refineries
- Conveyors
- Rolling stock
- Power plants
- Offshore structures
- Clean rooms
- Handrails
- Paper mills
- Suitable for use in USDA inspected facilities

Conforms to AWWA D102-03 OCS #5 & #6.
Acceptable for use in high performance architectural applications.

PRODUCT CHARACTERISTICS

Finish: High Gloss or Semi-Gloss

Color: Wide range of colors possible

Volume Solids: 65% ± 2%, mixed, may vary by color

Weight Solids: *77% ± 2%, mixed, may vary by color*

VOC (EPA Method 24): Unreduced: <340g/L; 2.80 lb/gal
mixed Reduced 15% <370 g/L; 3.08 lb/gal
May vary by color

Mix Ratio: 4:1 by volume

Recommended Spreading Rate per coat:

Wet mils:	4.5 - 6.0
Dry mils:	3.0 - 4.0
Coverage:	260 - 347 sq ft/gal approximate

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 4.5 mils wet @ 50% RH:

	@ 40°F	@ 77°F	@ 120°F
To touch:	4 hours	2 hours	1 hour
To handle:	16 hours	8 hours	5 hours
To recoat:			
minimum:	24 hours	18 hours	10 hours
maximum:	14 days	14 days	14 days
To cure:	14 days	10 days	7 days
Pot Life:	8 hours	4 hours	2 hours

If maximum recoat time is exceeded, abrade surface before recoating.
Drying time is temperature, humidity, and film thickness dependent.

Sweat-in-Time: None required

Shelf Life: **Part S** 36 months, unopened
Part T 24 months, unopened
Store indoors at 40°F at 100°F

Flash Point: 80°F, PMCC, mixed

Reducer/Clean Up:
Below 80°F: Reducer #69, R7K69
Above 80°F: Reducer #58, R7K58 or R6K32

PERFORMANCE CHARACTERISTICS

System Tested: (unless otherwise indicated)
Substrate: Steel
Surface Preparation: SSPC-SP6
1 ct. Recoatable Epoxy Primer @ 4.0 mils dft
1 ct. Hi-Solids Polyurethane Gloss @ 3.0 mils dft

Abrasion Resistance:
Method: ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load
Result: 87.1 mg loss

Adhesion:
Method: ASTM D4541
Result: 1050 psi

Corrosion Weathering:
Primer - Zinc Clad II Plus; Intermediate - Recoatable Epoxy Primer
Method: ASTM D5894, 21 cycles, 7,056 hours
Result: Rating 10 per ASTM D714 for blistering
Rating 9 per ASTM D610 for rusting

Direct Impact Resistance:
Method: ASTM D2794
Result: >28 in. lbs.

Dry Heat Resistance:
Method: ASTM D2485
Result: 200°F

Flexibility:
Method: ASTM D522, 180° bend, 1/8" mandrel
Result: Passes

Moisture Condensation Resistance:
Method: ASTM D4585, 100°F, 1000 hours
Result: No rusting, blistering, or delamination

Pencil Hardness:
Method: ASTM D3363
Result: F

Salt Fog Resistance:
Primer - Zinc Clad II Plus; Intermediate - Recoatable Epoxy Primer
Method: ASTM B117, 9,000 hours
Result: Rating 10 per ASTM D714 for blistering
Rating 9 per ASTM D610 for rusting

Thermal Shock:
Method: ASTM D2246, 15 cycles
Result: Excellent

Meets the requirements of SSPC Paint No. 36, Level 3.

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Industrial & Marine Coatings

5.21

HI-SOLIDS POLYURETHANE

PART S	B65-300	GLOSS SERIES
PART S	B65-350	SEMI-GLOSS SERIES
PART T	B60V30	HARDENER

PRODUCT INFORMATION

RECOMMENDED SYSTEMS

Steel: Epoxy Primer
1 ct. Recoatable Epoxy Primer @ 4.0 - 6.0 mils dft
1-2 cts. Hi-Solids Polyurethane @ 3.0 - 4.0 mils dft/ct

Steel: Epoxy Primer
1 ct. Dura-Plate 235 @ 4.0 - 8.0 mils dft
1-2 cts. Hi-Solids Polyurethane @ 3.0 - 4.0 mils dft/ct

Steel: Zinc Rich Primer
1 ct. Zinc Clad II Plus @ 3.0 - 5.0 mils dft
1 ct. Macropoxy 646 @ 5.0 - 10.0 mils dft
1-2 cts. Hi-Solids Polyurethane @ 3.0 - 4.0 mils dft/ct

Steel: Epoxy Mastic Primer
1 ct. Macropoxy 646 @ 5.0 - 10.0 mils dft
1-2 cts. Hi-Solids Polyurethane @ 3.0 - 4.0 mils dft/ct

Steel: Universal Primer
1 ct. Kem Bond HS Metal @ 2.0 - 5.0 mils dft
1-2 cts. Hi-Solids Polyurethane @ 3.0 - 4.0 mils dft/ct

Aluminum:
1 ct. DTM Wash Primer @ 0.7 - 1.3 mil dft
1-2 cts. Hi-Solids Polyurethane @ 3.0 - 4.0 mils dft/ct

Concrete:
1 ct. Kem Cati-Coat Epoxy HS Filler/Sealer @ 10.0 - 15.0 mils dft
1-2 cts. Hi-Solids Polyurethane @ 3.0 - 4.0 mils dft/ct

Galvanized Metal:
1 ct. Recoatable Epoxy Primer @ 4.0 - 6.0 mils dft
1-2 cts. Hi-Solids Polyurethane @ 3.0 - 4.0 mils dft/ct

The systems listed above are representative of the product's use. Other systems may be appropriate.

SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

* Iron & Steel:	SSPC-SP6/NACE 3, 2 mil profile
* Aluminum:	SSPC-SP1
* Galvanizing:	SSPC-SP1
* Concrete & Masonry:	SSPC-SP13/NACE 6, or ICRI 03732, CSP 1-3

* Primer Required

TINTING

Tint with 844 Colorants only into Part S. Extra White tints at 200% tint strength. Ultradeep tints at 150% tint strength. Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.

APPLICATION CONDITIONS

Temperature:	40°F minimum, 120°F maximum (air, surface, and material) At least 5°F above dew point
Relative humidity:	85% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging:	
Part S:	1 gallon and 4 gallon kits
Part T:	quarts and gallons
Weight per gallon:	10.7 ± 0.2 lb mixed, may vary with color

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Industrial & Marine Coatings

5.21A

HI-SOLIDS POLYURETHANE

PART S	B65-300	GLOSS SERIES
PART S	B65-350	SEMI-GLOSS SERIES
PART T	B60V30	HARDENER

APPLICATION BULLETIN

Revised 6/05

SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Iron & Steel
Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6/NACE 3. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils). Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

Aluminum
Remove all oil, grease, dirt, oxide and other foreign material by Solvent Cleaning per SSPC-SP1. Primer required.

Galvanized Steel
Allow to weather a minimum of six months prior to coating. Remove all oil, grease, dirt, oxide and other foreign material by Solvent Cleaning per SSPC-SP1. When weathering is not possible, or the surface has been treated with chromates or silicates, first Solvent Clean per SSPC-SP1 and apply a test patch. Allow paint to dry at least one week before testing adhesion. If adhesion is poor, brush blasting per SSPC-SP7 is necessary to remove these treatments. Rusty galvanizing requires a minimum of Hand Tool Cleaning per SSPC-SP2, prime the area the same day as cleaned.

Concrete and Masonry
For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI 03732, CSP 1-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 75°F. Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets and other voids with ArmorSeal Crack Filler. Weathered masonry and soft or porous cement board must be brush blasted or power tool cleaned to remove loosely adhering contamination and to get to a hard, firm surface. Laitance must be removed by etching with a 10% muriatic acid solution and thoroughly neutralized with water. Primer required.
Brick must be allowed to weather for one year prior to surface preparation and painting.

APPLICATION CONDITIONS

Temperature:	40°F minimum, 120°F maximum (air, surface, and material) At least 5°F above dew point
Relative humidity:	85% maximum

APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compatible with the existing VOC regulations and compatible with exisiting environmental and application conditions.

Reducer/Clean Up
Below 80°F ..... Reducer #69, R7K69
Above 80°F ..... Reducer #58, R7K58 or R6K32

Airless Spray
Pressure ..... 2500 - 2800 psi
Hose ..... 3/8" ID
Tip ..... .013" - .017"
Filter ..... none
Reduction ..... As needed up to 10% by volume

Conventional Spray
Gun ..... Binks 95
Fluid Nozzle ..... 63 B
Atomization Pressure .. 50 - 70 psi
Fluid Pressure ..... 20 - 25 psi
Reduction ..... As needed up to 15% by volume

Brush
Brush ..... Natural bristle
Reduction ..... As needed up to 15% by volume

Roller
Cover ..... 3/8" woven with phenolic core
Reduction ..... as needed up to 15% by volume

If specific application equipment is not listed above, equivalent equipment may be substituted.

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Industrial & Marine Coatings

5.21A

HI-SOLIDS POLYURETHANE

PART S B65-300 GLOSS SERIES
PART S B65-350 SEMI-GLOSS SERIES
PART T B60V30 HARDENER

APPLICATION BULLETIN

APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with power agitation. Make certain no pigment remains on the bottom of the can. Then combine 4 parts by volume of Part S with 1 part by volume of Part T. Thoroughly agitate the mixture with power agitation.

If reducer solvent is used, add only after both components have been thoroughly mixed.

Apply paint at the recommended film thickness and spreading rate as indicated below:

Recommended Spreading Rate per coat:

Wet mils:	4.5 - 6.0
Dry mils:	3.0 - 4.0
Coverage:	260 - 347 sq ft/gal approximate

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 4.5 mils wet @ 50% RH:

	@ 40°F	@ 77°F	@ 120°F
To touch:	4 hours	2 hours	1 hour
To handle:	16 hours	8 hours	5 hours
To recoat:			
minimum:	24 hours	18 hours	10 hours
maximum:	14 days	14 days	14 days
To cure:	14 days	10 days	7 days
Pot Life:	8 hours	4 hours	2 hours

If maximum recoat time is exceeded, abrade surface before recoating. Drying time is temperature, humidity, and film thickness dependent.

Sweat-In-Time: None required

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

PERFORMANCE TIPS

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, and adhesion.

Do not apply the material beyond recommended pot life.

Do not mix previously catalyzed material with new.

In order to avoid blockage of spray equipment, clean equipment *before use or before periods of extended downtime* with Reducer #58, R7K58.

Mixed coating is sensitive to water. Use water traps in all air lines. Moisture contact can reduce pot life and affect gloss and color.

Quick-Thane Urethane Accelerator is acceptable for use. See data page 5.97 for details.

E-Z Roll Urethane Defoamer is acceptable for use. See data page 5.99 for details.

Refer to Product Information sheet for additional performance characteristics and properties.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer #58, R7K58. Clean tools immediately after use with Reducer #58, R7K58. Follow manufacturer's safety recommendations when using any solvent.

SAFETY PRECAUTIONS

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